

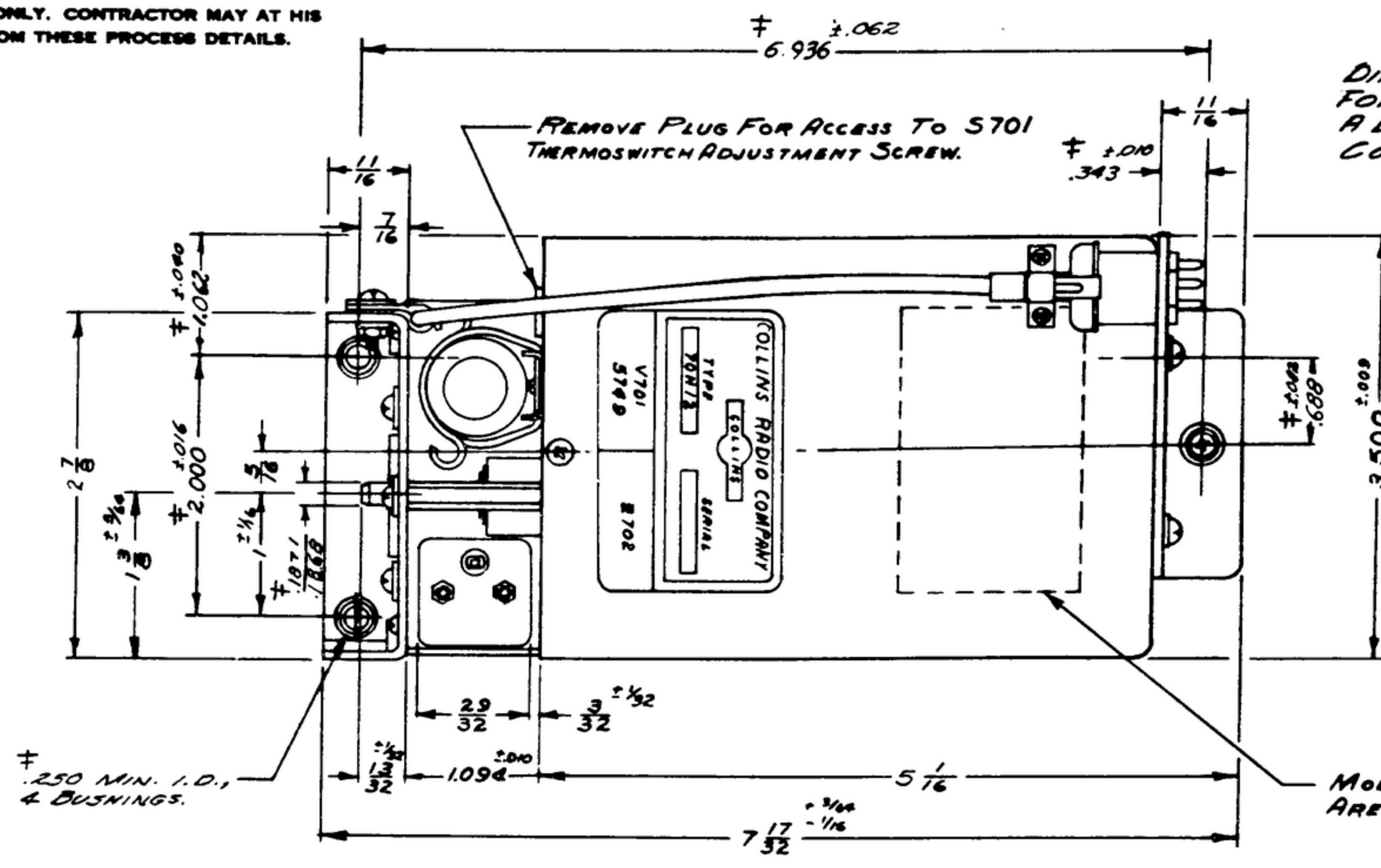
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FOR INFORMATION ONLY. CONTRACTOR MAY AT HIS OPTION DEVIATE FROM THESE PROCESS DETAILS.

EQUIP. TYPE: 70H-12 EXP. NO.

Doc. 540-714-004

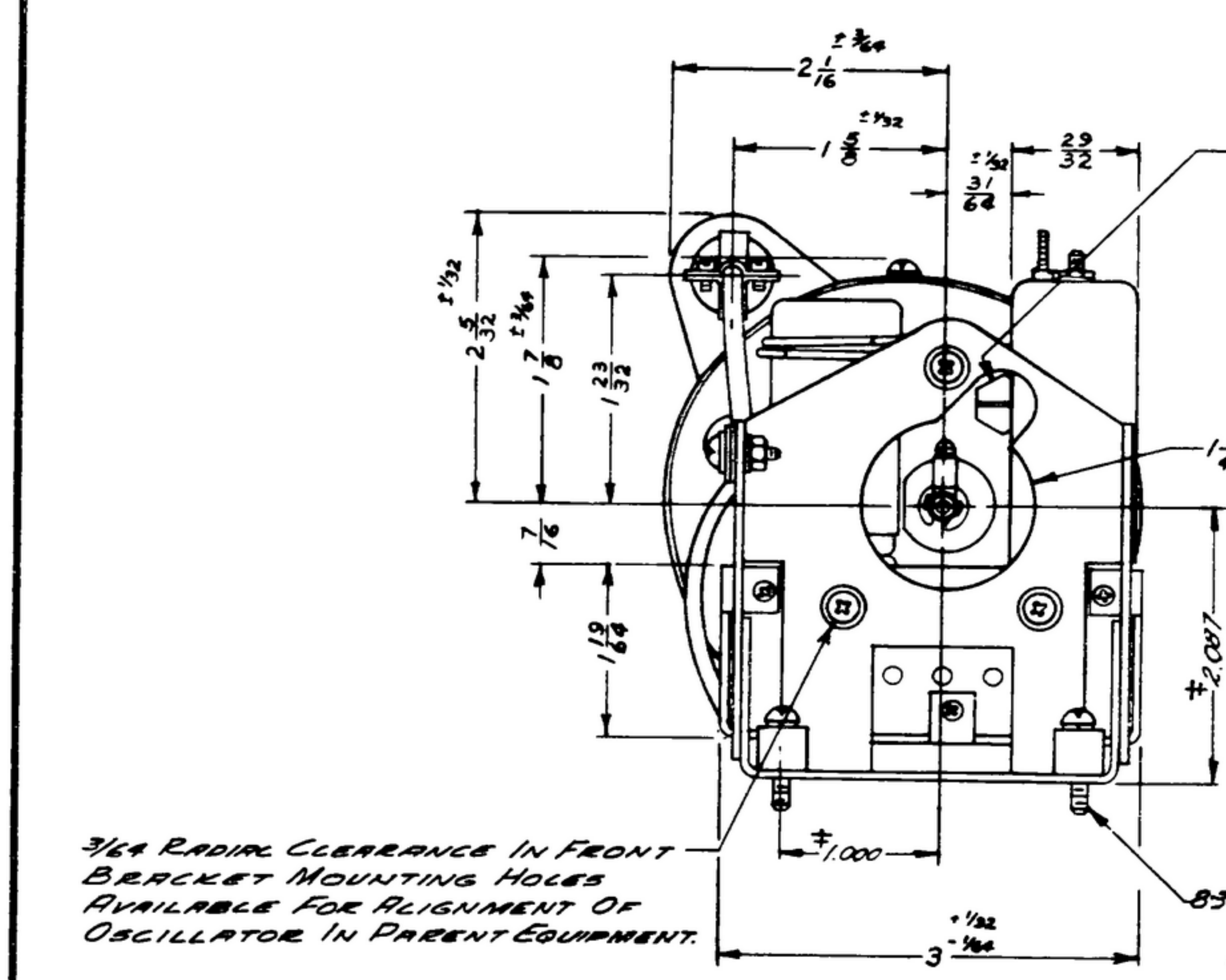
POWER PLUG INFORMATION		
PIN	WIRE COLOR	FUNCTION
A	WHT-RED	B+ 180V PLATE
B	WHT-BROWN	150V REG SCREEN
D & E	BRN	26.5V OVEN
F	WHT	OSC GROUND
H	WHT-BLK	6.3V HEATER
J & K	WHT	OVEN GROUND



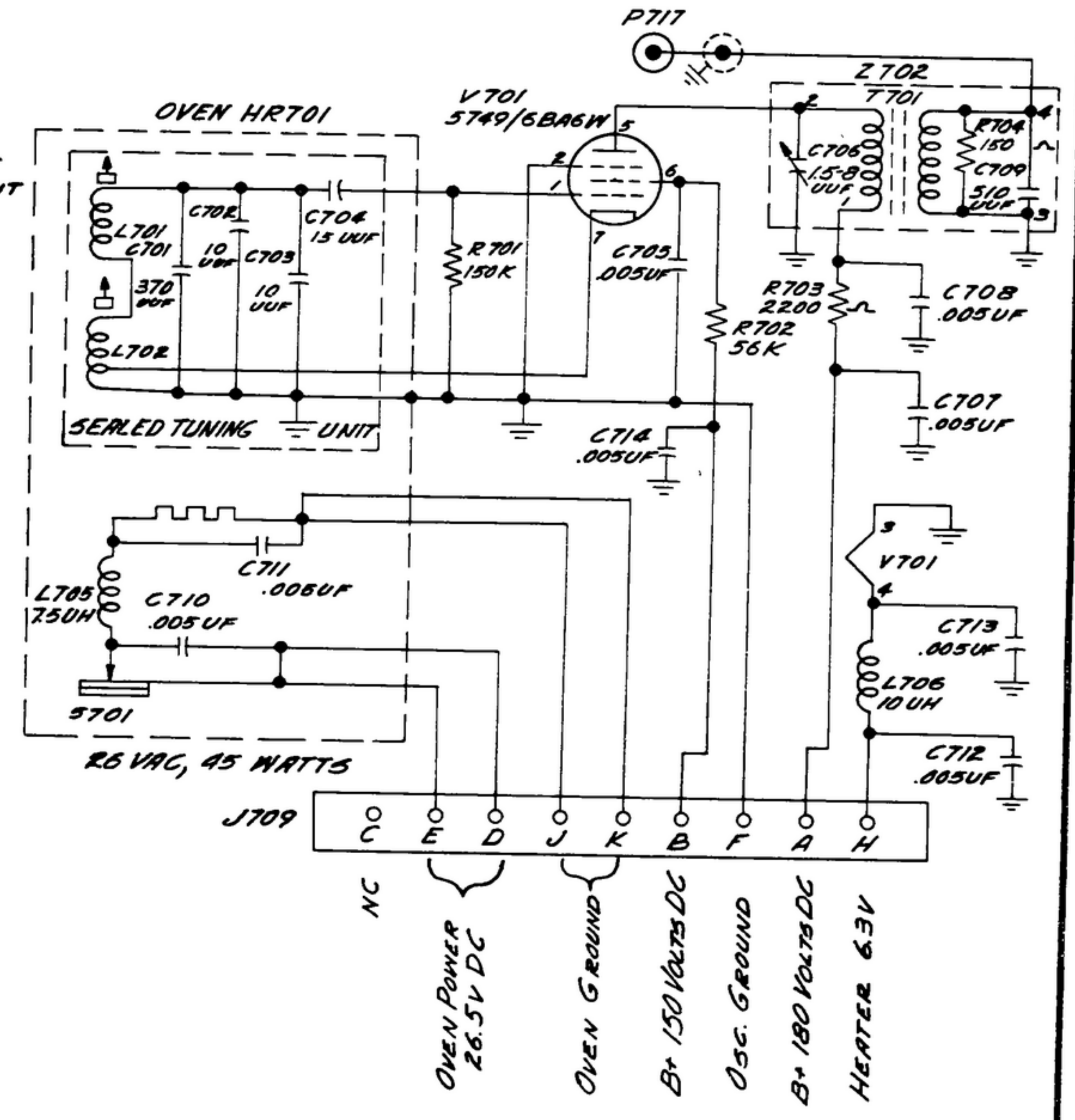
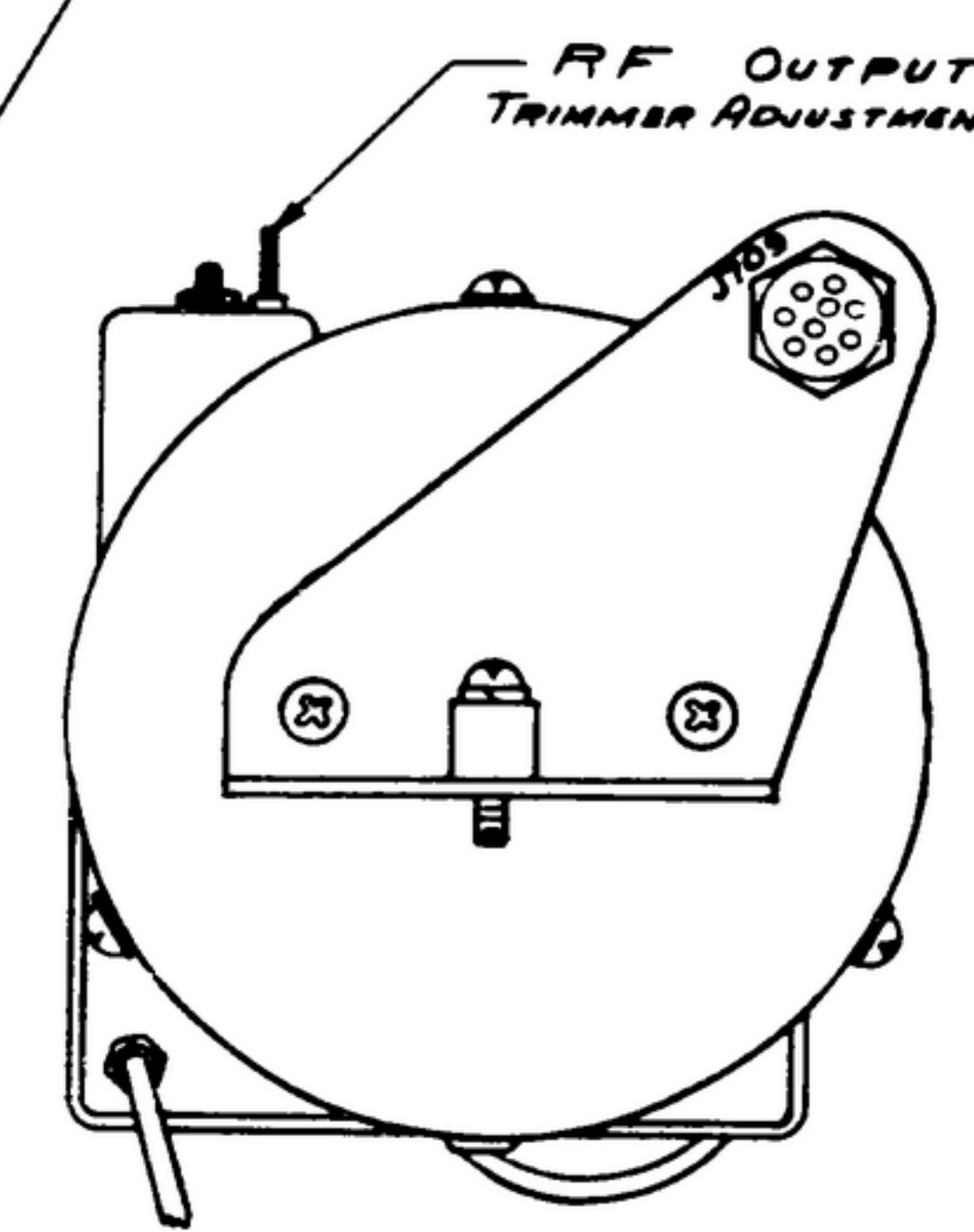
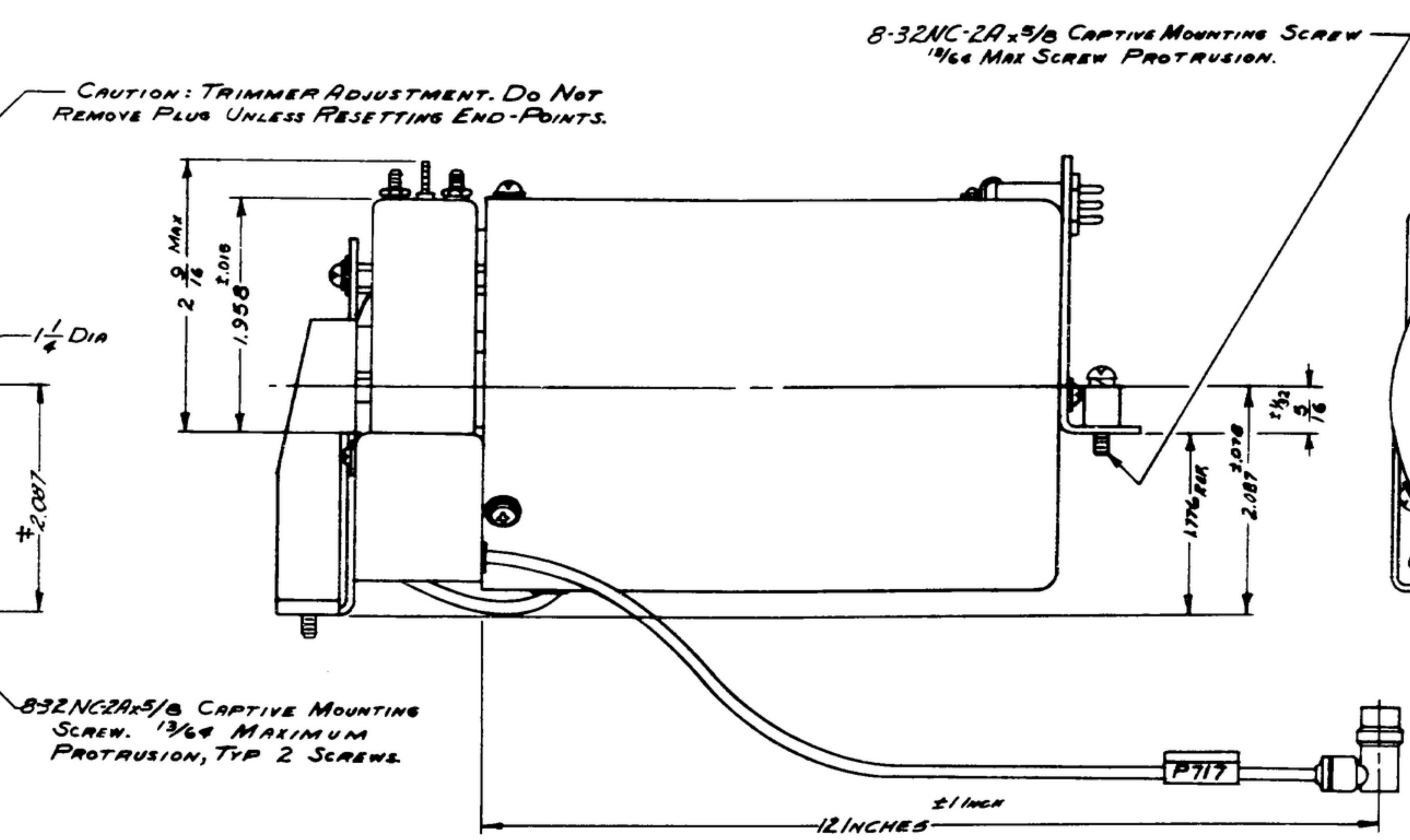
DIMENSIONS MARKED (*) ON THIS DRAWING DEFINE LIMITS FOR INTERCHANGEABILITY GRADING (ARE TO BE USED AS A BASIS FOR ACCEPTANCE OR REJECTION OF THE COMPLETED ASBY.

MOD. NO. APPEARS IN THIS AREA WHEN REQUIRED.

REVISIONS			
BY	DESCRIPTION	DATE	APPROVAL



3/16" REAR CLEARANCE IN FRONT BRACKET MOUNTING HOLES AVAILABLE FOR ALIGNMENT OF OSCILLATOR IN PRESENT EQUIPMENT.



NOTES:

- PART MAY BE TYPE 70H-12 (*522 0248 004) AS SUPPLIED BY COLLINS RADIO COMPANY, CEDAR RAPIDS, IOWA, OR EQUAL, PROVIDING IT MEETS THE FOLLOWING REQUIREMENTS AND DIMENSIONS SHOWN.

TYPE AND FUNCTION OF EQUIPMENT: THE TYPE 70H-12 IS A PERMEABILITY TUNED, VARIABLE FREQUENCY OSCILLATOR THAT IS SEALED TO ATMOSPHERIC CHANGES, MECHANICALLY AND ELECTRICALLY STABLE AND HAS A THERMOSTATICALLY CONTROLLED OVEN ATTACHED. IT ALSO FEATURES A BANDPASS OUTPUT FILTER, PROVIDING A SOURCE OF LOW IMPEDANCE. THE OUTPUT IMPEDANCE OF THE FILTER WILL VARY FROM 100 TO 145 OHMS OVER THE TUNING RANGE 2.455 TO 3.455 MC. A TYPE 5749/6B6W MINIATURE TUBE IS USED.

FREQUENCY RANGE: 2.455 TO 3.455 MC PER SECOND.

TUNING: THE TUNING RATE IS 100 KC PER SECOND TURN OF THE TUNING SHAFT FOR TEN TURNS. THE OSCILLATOR FREQUENCY INCREASES WITH COUNTERCLOCKWISE ROTATION OF THE TUNING SHAFT WHEN VIEWED FROM TUNING SHAFT.

MECHANICAL OVERTRAVEL: MECHANICAL OVERTRAVEL BEYOND END FREQUENCIES IS 1-1/2 TURNS MINIMUM, EACH END. CAUTION: DO NOT EXCEED THESE LIMITS OR SERIOUS DAMAGE MAY BE DONE TO INTERIOR OSCILLATOR MECHANISM.

OUTPUT VOLTAGE: WHEN PROPERLY ENERGIZED THE TYPE 70H-12 PROVIDES AN OUTPUT VOLTAGE ACROSS A 1000 OHM LOAD OF 1.70 TO 2.5 VOLTS, WHEN MEASURED WITH A HEMLETT-PACKARD 110A VACUUM TUBE VOLTMETER, AS SUPPLIED BY HEMLETT-PACKARD, PALO ALTO, CALIF., OR EQUAL.

OVEN: A THERMOSTATICALLY CONTROLLED OVEN IS ADJUSTED TO +75°C ±1/2°C TO HOLD TEMPERATURE OF THE OSCILLATOR CONSTANT OVER THE OPERATING TEMPERATURE RANGE.

TUBE RETAINER CLIP: A SPECIAL SPRING AND RETAINER ASSEMBLY PROVIDE VIBRATION DAMPING TO THE VACUUM TUBE.

PERFORMANCE:

AMBIENT TEMPERATURE RANGE: 0° to +90°C. (MAY BE OPERATED TO -40°C IF PROVISIONS ARE MADE TO LIMIT AIR MOVEMENT OVER THE OSCILLATOR.)

AMBIENT HUMIDITY RANGE: 0 TO 95% RELATIVE.

ALTITUDE: NO EFFECT.

SHOCK: 10 G'S MOUNTED. A SHOCK APPLIED DIRECTLY ON THE TUNING SHAFT WILL AFFECT THE FREQUENCY STABILITY.

VIBRATION: AVERAGE FREQUENCY DEVIATION FROM CENTER FREQUENCY WHEN VIBRATED AT 10 G'S AT 60 CPS AS MOUNTED, WILL BE 100 CYCLES OR LESS.

CALIBRATION: THE OSCILLATOR FREQUENCY VARIES LINEARLY WITH LEADSHAFT ROTATION OVER THE FREQUENCY RANGE AND, WITH THE ENDPOINTS SET TO ZERO ERROR WILL NOT BE IN ERROR BY MORE THAN 750 CYCLES WHEN MEASURED FROM THE MOST POSITIVE TO THE MOST NEGATIVE DEVIATION FROM LINEARITY. IN ADDITION, THE FREQUENCY ERROR IS NOT IN EXCESS OF 250 CPS WHEN CHECKED TO ADJACENT 25 KC POINTS WITHIN THE LINEAR TUNING RANGE.

ENDPOINT SPREAD: WHEN TUNED FROM THE LOW FREQUENCY ENDPOINT (2.455 MC) TO THE OPPOSITE EXTREME (3.455 MC) THE DEVIATION FROM 3.455 MC WILL BE NO MORE THAN +1500 CPS AND NO MORE THAN -200 CPS. LONG STORAGE OR OPERATION MAY REQUIRE TRIMMER ADJUSTMENT.

FREQUENCY-TUNING CHARACTERISTICS: THE FREQUENCY CHANGE DUE TO A TEMPERATURE CHANGE FROM 0°C TO +75°C WITH OVEN OPERATING IS NOT GREATER THAN ±150 CPS. WHEN OPERATED FROM 0°C TO -40°C IN STILL AIR THE FREQUENCY WILL NOT DEVIATE IN EXCESS OF ±150 CPS. OPERATION TO +90°C WILL PRODUCE LARGER FREQUENCY SHIFTS.

FREQUENCY-VOLTAGE CHARACTERISTICS: THE FREQUENCY DOES NOT CHANGE BY MORE THAN 75 CYCLES WHEN THE B+ VOLTAGES ARE VARIED FROM -10% TO +10% OF NOMINAL VOLTAGE OR WHEN THE FILAMENT VOLTAGE IS VARIED FROM -10% TO +10% OF NOMINAL.

FREQUENCY-OVEN CYCLING CHARACTERISTICS: FREQUENCY CHANGE WITH OVEN CYCLING DOES NOT EXCEED 30 CYCLES TOTAL.

FINISHES: EXPOSED ALUMINUM SURFACES, E513, PER SPEC MIL-F-14072. EXPOSED BRASS SURFACES, H220 PER SPEC MIL-F-14072. STAINLESS STEEL, E300 PER SPEC MIL-F-14072.

DRAWN		CHECKED		APPROVED		REVIEWED		DATE		SCALE	

UNLESS OTHERWISE SPECIFIED:

CENTRAL DIMENSIONS INCLUDING HOLE SIZES MAY VARY ±.005

FRACTIONAL DIMENSIONS INCLUDING HOLE SIZES MAY VARY ±1/16

SHOULDER ANGLES MAY VARY ±1.5°

SHARPENED ANGLES MAY VARY ±1.5°

ROUNDEDNESS BETWEEN ANY PARTS ON THE SAME CONTAINER SHALL NOT EXCEED .015 TYPICAL TOLERANCE UNLESS OTHERWISE SPECIFIED

ALL DIMENSIONS ARE FROM DIMENSIONS UNLESS APPLIED OTHER WISE ARE GIVEN IN INCHES.

LIST OF MATERIAL

70H-12 OSCILLATOR

DEPARTMENT OF THE ARMY
SIGNAL CORPS ENGINEERING
LABORATORIES
FORT MONMOUTH, NEW JERSEY

SMD-248785

WHEN REFERRING TO THIS DRAWING STATE DRAWING NO., APPLICABLE ISSUE SYMBOL IF ANY, AND DATE